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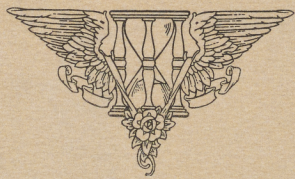
George B. Cellon

III

Tropical Grove

Nursery Department

Miami, Florida, U. S. A.



COMMERCIAL VARIETIES
OF
TROPICAL FRUIT TREES

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Bureau of Plant Industry

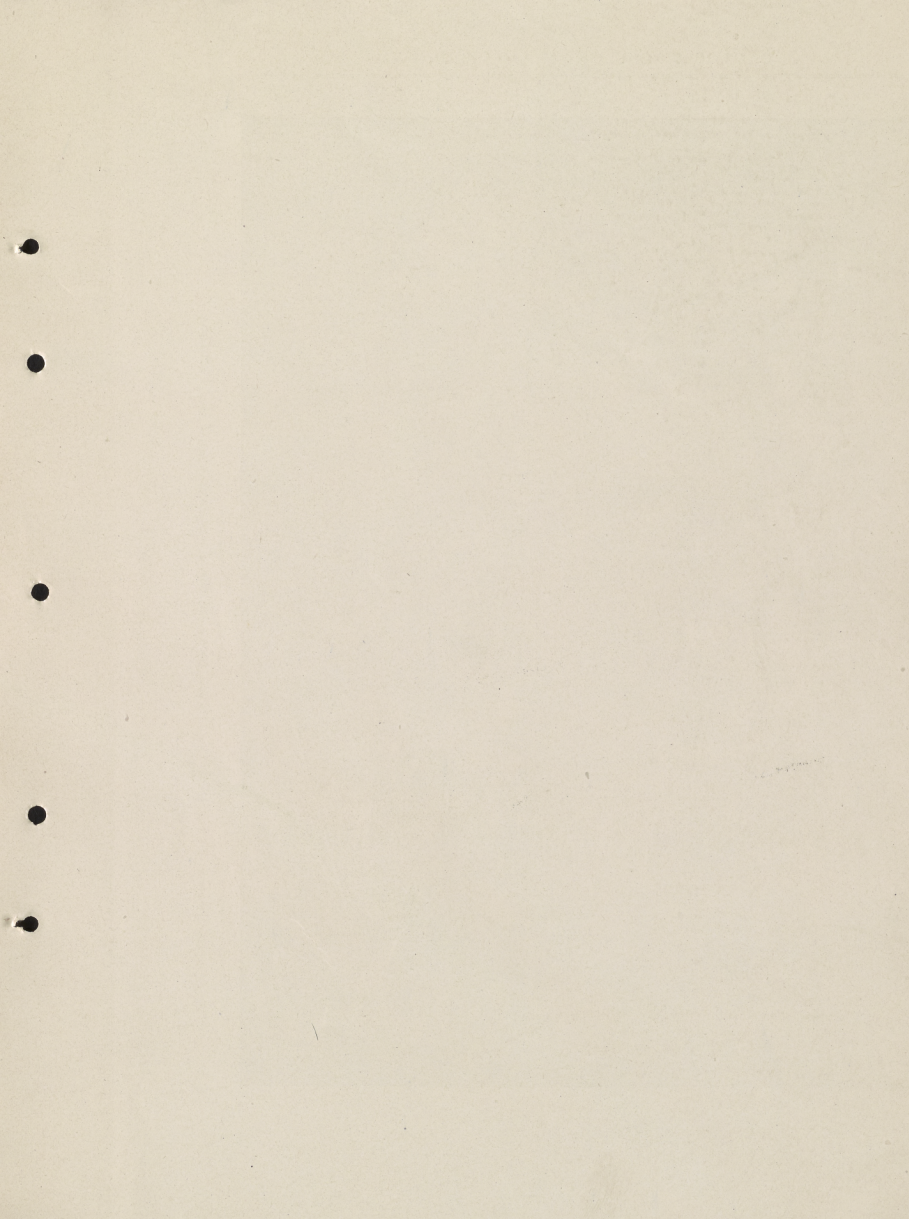




Fig. 1. Budded Mango trees in our plant house and the Hindoos.

Introduction

With this publication we desire to express our thanks and appreciation for the many kind expressions of individuals, and the Press; and the friendly reception of our last issue and the substantial co-operation and patronage.

And we desire to express our congratulations to all interested in the development and introduction of these fruits, which has added to our luxuries the most delicious and nourishing of all fruits.

While our supply of fruit is now and will possibly continue to be inadequate to an increasing demand, these tropical luxuries now stand a market reality in America, at prices unequaled by any of the introductions of the past.

The list of varieties previously recommended are sustained as standards by more extensive market distribution, and by testing many new varieties, proving their combination of the greatest number of points of commercial value.

We only offer trees propagated by budding, grafting, slips and cuttings, these being the only means of producing known varieties for commercial planting.

We again express our thanks for co-operation and patronage, pledging our efforts in the future.

Very truly yours,

GEORGE B. CELLON.

Miami, Florida, October 1, 1910.
Established in 1901.

Commercial Tropical Fruit

The importance of fruit as a part of the human diet was never more fully realized than at the present time.

The expansion of fruit production is shown by the vast area now in permanent orchard, which is being annually extended, in which men in all stations of life are investing their efforts and capital.

As the production of the Apple, Pear, Peach and Plum, with a great number of small fruits in the temperate and colder sections; the Orange and Grapefruit in the subtropical sections; the Pineapple and Banana in the tropical countries, have reached a stage of development that profits in their culture to the grower depend upon the most intelligent selection of variety and cultivation.

The most profitable field in this industry to be occupied now, lies in the production of new tropical fruit in the tropical territory that is accessible by quick transportation to densely populated sections.

The only tropical fruits that have been fully developed and extensively distributed in the markets are the pineapple and banana, which is due to the ease and simplicity of their being propagated by slips, suckers and tubers, true to variety. The other tropical fruits which, many of them, are of greater commercial importance, are dependent upon their propagation, true to variety, on the art of budding and grafting, which had not been successfully applied to tropical trees, except to the mango by the operation of an approach graft, or inarch in India and to a very limited extent in other countries, and sufficient quantities of trees true to variety were not available for commercial planting until the discoveries just prior to the beginning of the present century, by the writer, of methods of budding these tropical fruit trees, and by these methods which are now being applied, many of the most important tropical fruits are being brought into commercial cultivation. Among those that are now market realities in America are the aristocratic varieties of the delicious mango and loquat, and the nutritious avocado, which offers opportunities of profits unequaled by any other fruit now in cultivation.



Fig. 2. Mulgoba Mango tree. Third crop 427 fruit on eight year old budded tree

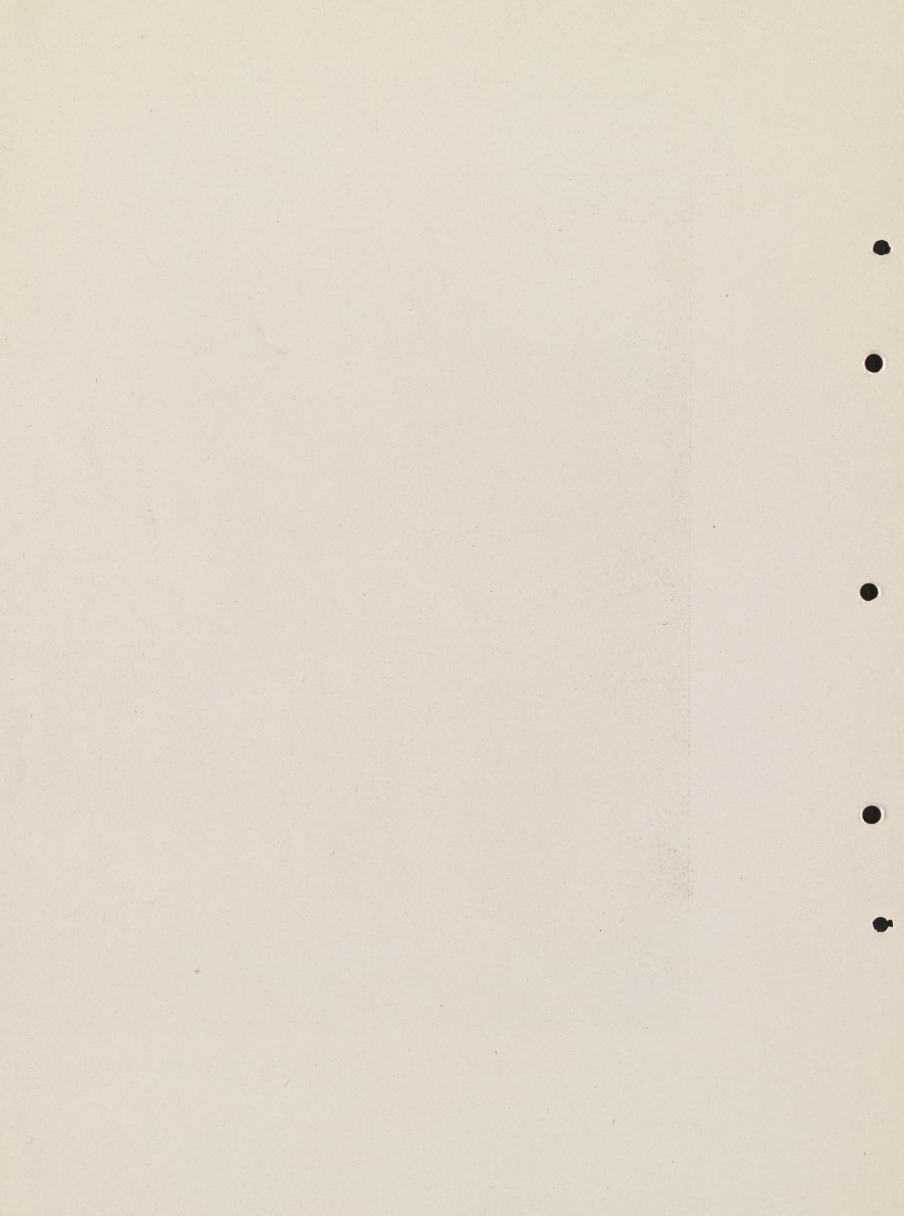
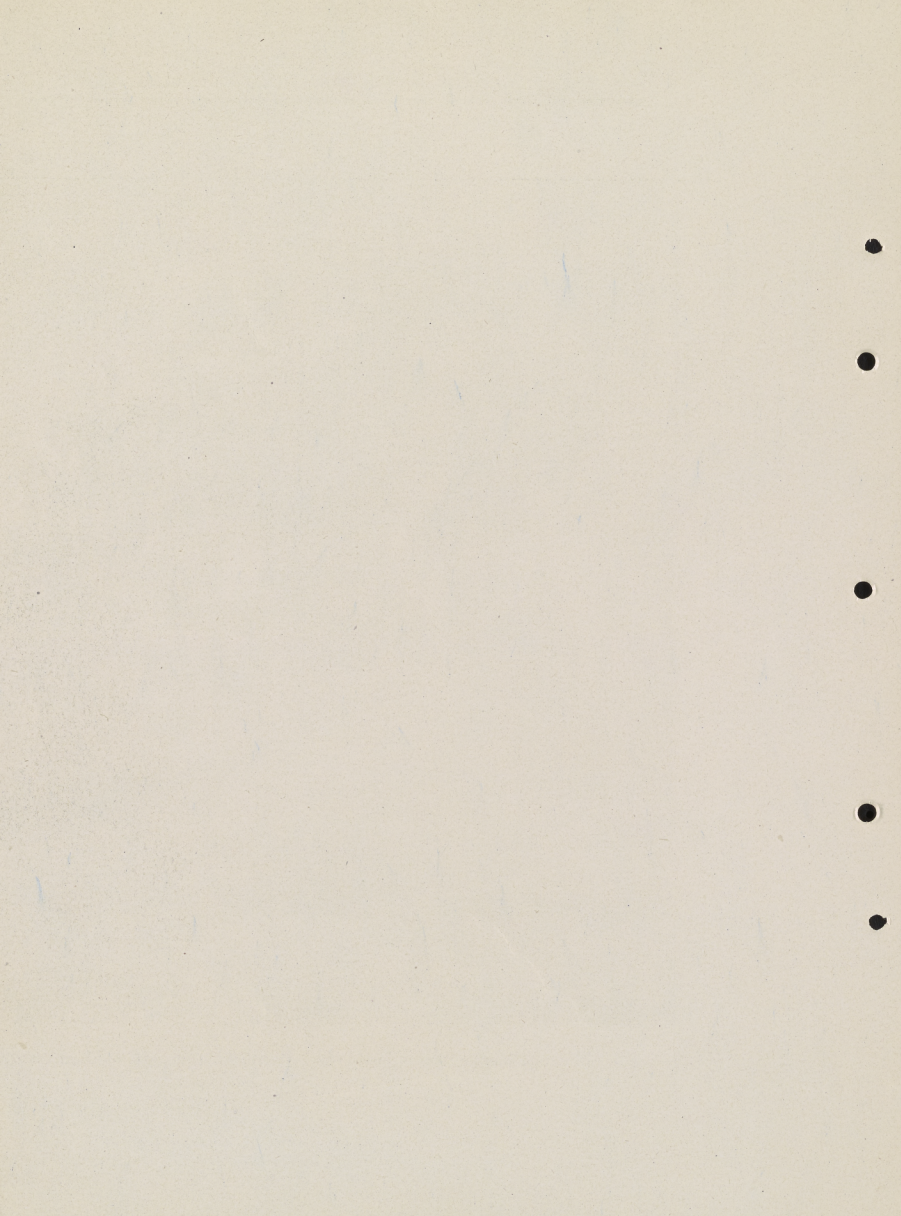




Fig. 3. Mulgoba Mango Tree. First crop, 119 fruits on five year old budded tree



Mango

(*Magnifera Indica*)

In treating this as a commercial fruit, we do not mean the common jungle variety found growing promiscuously in tropical countries, or the seedlings of the finer sorts that degenerate to those wild types. While in many of these the pulp is finely flavored, they cannot be classed as commercial fruits on account of the mechanical structure of the fruit, with the pulp so imbedded in a fibrous mass that they cannot be eaten without great inconvenience, and from a commercial standpoint we do not consider these as fruit at all.

The points of most importance in a commercial variety of mango is the flavor, appearance must be good and the mechanical structure of the fruit should be such that the fruit can be separated in halves and the seed extracted without leaving any fiber in the pulp, which is to be eaten from the fruit with a spoon, like a cantaloupe. The shape, size and season that the fruit is to be marketed are important points.

In this as in other kinds of fruits and in the different types of animals, nature has been very generous in the production of superior variety, and among these, in the mango, we find the most delicious of all dessert fruits; and if they can be produced in sufficient quantities to fix a price to render them available to the masses they would be the most extensively consumed of all dessert fruit, as we have varieties from the highest aromatic and strong acid flavors, blending in all shades of flavor to the most sparkling, spicy and sweet flavors that are to be desired in fruit.

The illustration on page 2, figure 1, entitled "Budded Mango Trees in Our Plant House, and the Hindoos" is a reproduction of a photograph by Kaufmann. The persons there shown are Mr. W. E. March, of Miami, Florida, and myself, who are the pioneer planters of mangos of commercial varieties in commercial orchards on the western hemisphere. The four Hindoos are S. Dotta, A. C. Ghosh, H. P. Mitra and J. N. Chakravarty, of Bengal, India, who are graduates of the best colleges and trained in the most modern methods of their country, and had just finished a special course at Cornell University, Ithaca, New York, and preparatory to returning to duties in India were commissioned by the Department of Agriculture of their country to investigate our methods in tropical agriculture, and especially the budding of the mango which had been considered impossible, and the interest in this, the most important fruit

(Mango—Continued)

of their country, can be seen reflecting from the faces of these intelligent representatives of their race.

The group here shown in this illustration in plants and persons represents the most advanced thoughts in the world's horticulture, and the germ effort that will contribute the greatest luxury in dessert fruits known to modern civilization.

Culture

The Mango in India, its native country, has for many years been cultivated as the most important fruit of that country, and under as complete methods as the development of that country permitted, and was not restricted there or in other tropical countries for lack of appreciation or value in the fruit, as the importance of the mango as a commercial fruit has been realized for many years, but its development and the extensive production of commercial varieties has been defeated by difficulties in its propagation to reproduce them true to variety, which could only be accomplished by the slow and expensive method of inarching, by which the fine varieties has been perpetuated and distributed very gradually into other countries offering suitable climatic conditions; where their introductions would be defeated by attempts to reproduce them from seed, with the result that they would degenerate to the wild jungle types which have very little or no commercial value.

This process of cultivation was continued up to the beginning of the present century when the mango as well as all other tropical fruits, excepting the banana and pineapple, outside of India, consisted of countless numbers of mongrel seedlings, except the few mango trees produced by inarching, found in Government experimental gardens and botanical collections.

The importation into this country of the better varieties of Mango from India has continued for the past thirty or forty years, with the result that the tree of the Mulgoba, which had been imported from India in 1889, was fruiting at Mangonia, Florida, and there were less than one hundred trees of this variety planted in South Florida, and about as many more, all inarched trees, in government gardens and botanical collections of other varieties on the western hemisphere at the close of the year 1900, when the course of progressive culture began by the applications of methods discovered by the writer of budding mango trees, similar to the methods applied to all other fruits that are grown in



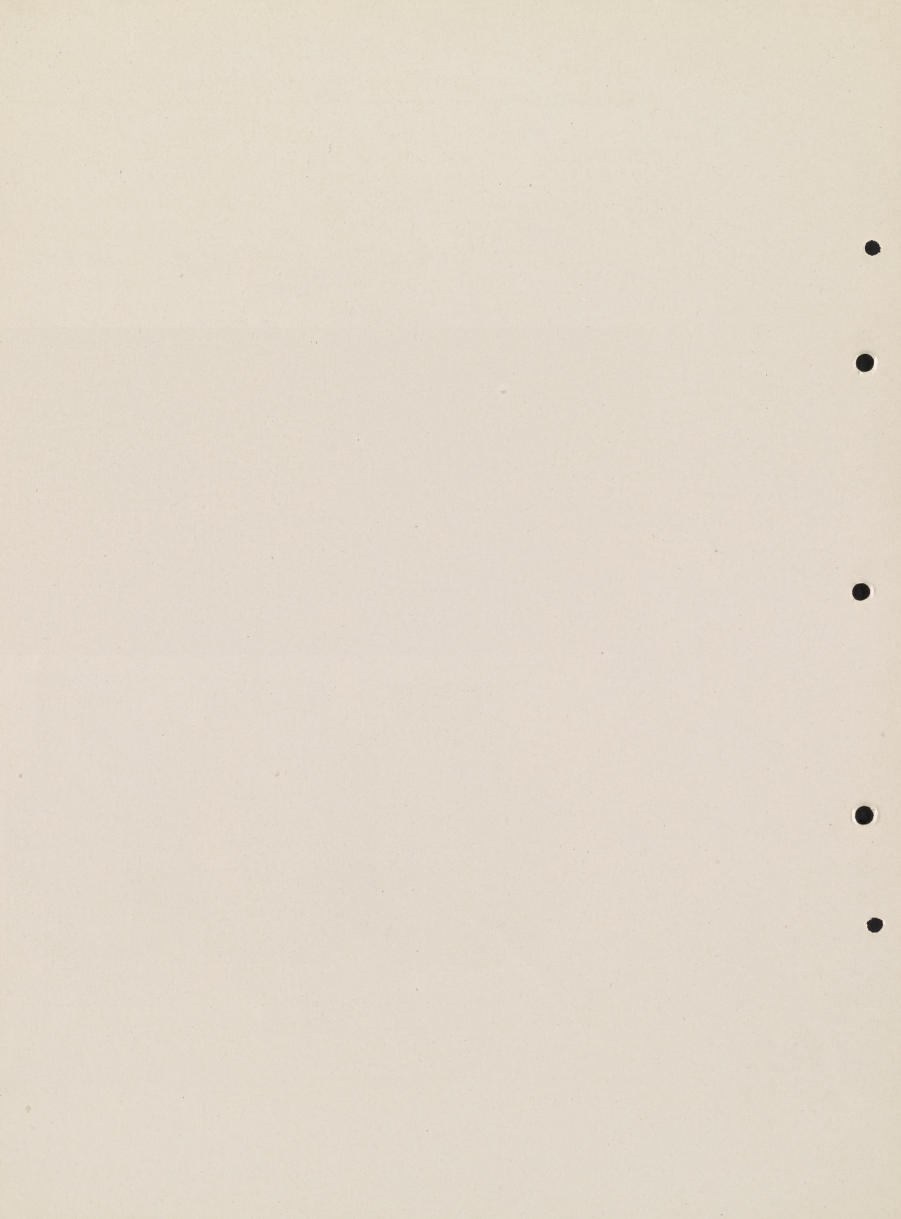
Fig. 4

Loquat.

Mango.

Avocado.

Trees ready for planting.



(Culture—Continued)

civilized countries for market purposes, and the story of development is as follows:

In the winter of 1900, the writer made the pleasant acquaintance of Mr. Charles Parry, of Riverton, N. J., who had planted one inarched tree of the Mulgoba on his lot at No. 112 Second street, Miami, Florida, who gave me permission to cut a piece of budwood from this tree. We cut off a piece about twelve inches long, and from this piece of budwood all the Mulgoba mango trees now growing on the western hemisphere, which number many thousands, except those produced by inarching, which are less than five hundred, are growing in orchard places at this time. From this small beginning many thousands of trees are distributed from our nursery operations each year, and the extensive distribution of the fruit of the finest varieties of mangos remains only a question of a few years and the expenditure of our modern energy in their cultivation.

The territory in which the mango can be grown and placed on American markets in perfect condition, is limited on account of the tropical nature of the tree.

When the trees are young a few degrees of frost will destroy them, therefore in latitudes where frosts occur, the young trees should be protected during the first two or three winters. After the young trees are three or four years old the thick bark on the stem and the dense foliage on the wide spreading branches furnish protection sufficient for their profitable culture, where the mercury goes as low as 30 to 32 degrees Fahrenheit.

The soil best suited for the cultivation of the mango is a light, sandy loam with well drained surface.

The mango tree is a very sensitive feeder and a soil that is very rich is not desirable. We have a great deal yet to learn about fertilizing the mango tree, especially in the application of concentrated chemical fertilizers.

The mango is a vigorous, long lived tree and in all respects the habits of the finer varieties are the same as those of the wild types, except as is the rule with all fruit trees and animals, the commoner species produce fruit in great numbers at the expense of size and desirable qualities.

Our illustration in Figure 4, shows a budded Mulgoba mango tree, ready for planting. Figure 3, shows a five year old budded bulgoba mango with first crop of 119 fruits, and Figure 2, shows an eight year old budded Mulgoba mango tree with the third crop of 427 fruit. The first crop of fruit on the tree last referred to was given away as sample fruit. The second crop sold for \$42.00 and the third crop sold for \$102.00 F. O. B. Miami, Florida, to the fancy dealers in the large cities of the North.

Varieties

The mango offers great diversity of variety in points of preference to the varied tastes, but for strictly market purposes we find only a few varieties possessing a great number of points without some other seriously objectionable to a commercial fruit.

The following variety possesses the greatest number of points for commercial purposes, tested in this country.

Mulgoba

From India. The stock here offered are produced from budding in direct lines from the original tree at Mangonia, Florida, which was imported by the United States Department of Agriculture in 1889.

This variety has fruited for many years in South Florida and is being most extensively planted in commercial orchards in Florida, Cuba and Porto Rico for American markets.

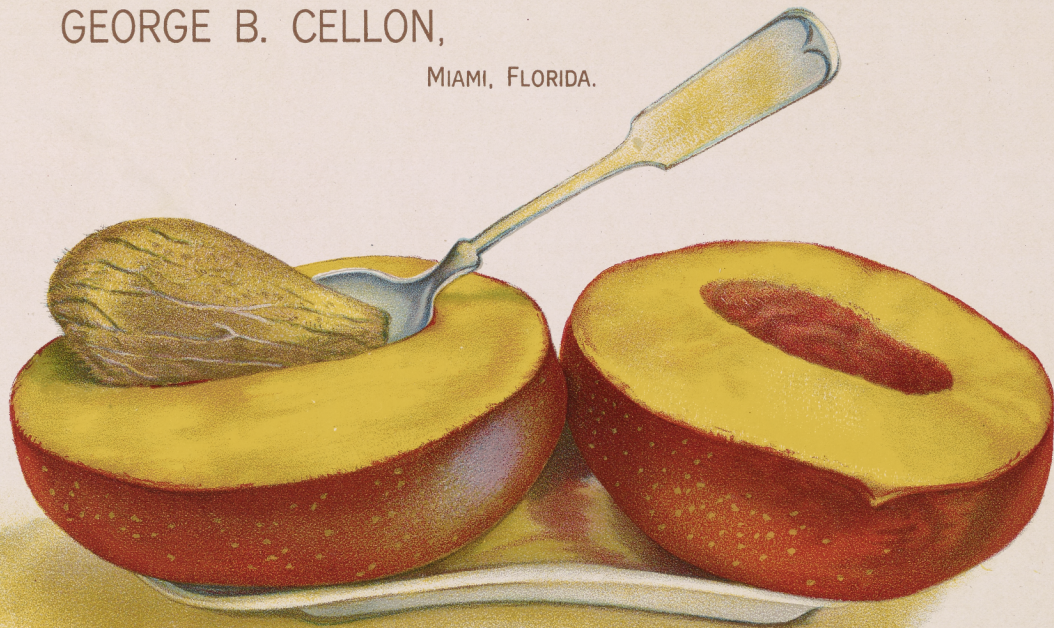
Size—Medium to large, average weight, one pound. Shape—nearly round, obliquely impressed on one side, marked with very small protrusion at blossom point. Color—rich golden yellow, washed with rich bright carmine on the side exposed to the light, fading to delicate pink tints, daintily specked with very small brown dots over surface, with delicate purple bloom. Skin smooth, thin, but firm and of good substance. Flesh rich, golden yellow color, smooth, rich, tender, melting, sweet and delicious, with delicate, sparkling, spicy perfumed aroma. Fibre short and coarse, extending only from the thin edges of a medium small and thin seed. Quality very best. Can be easily separated in halves and the seed extracted without leaving any fiber in the pulp which can be eaten from the fruit with a spoon.

Season, July. Tree a strong grower and good bearer, when of bearing age, and properly cultivated.

The two varieties described below fruited here this season for the first time, and shows many high points of commercial value, and we consider them promising commercial varieties.

GEORGE B. CELLON,

MIAMI, FLORIDA.





Haden

Originated from a seedling planted by the late Captain J. A. Haden at Cocoanut Grove, Florida, whose name it bears, and is apparently of the East Indian Type.

Size—medium to large. Shape—oblong, nearly round, only slightly impressed on one side at blossom end, which is nearly the same size in circumference as at the stem end, making it of convenient shape for packing. Color—rich golden yellow, washed over the greater portion of surface with rich crimson and scarlet. Skin smooth, tough and of firm substance, medium thin. Flesh golden yellow color. Flavor rich, aromatic and spicy. Seed medium small, fiber short and coarse, extending only from thin edge of the seed. Quality, best. Season, July.

The fruit can be easily separated in halves and the seed extracted without leaving any fiber in the pulp, which can be eaten from the fruit with a spoon.

Paheri

From India. Size—medium. Color—yellow, blushed with red and pink on side exposed to light. Shape—nearly round, slightly flattened and obliquely impressed on one side, with point protrusion at blossom point. Skin medium thin, of firm substance. Flesh, rich golden yellow color, fine grain, tender. Flavor rich and melting, highly aromatic and spicy.

The fruit can be easily separated in halves without leaving any fiber in the pulp, which can be eaten from the fruit with a spoon.

The varieties listed below, we propagate the trees in limited quantities and can furnish them to those desiring to plant them in family orchards and for favorite points for individuals.

Amini: From India.

Bennett: From India.

Cambodiana: From India.

Cecil: Oringated near Miami, Florida.

Gordon: From Trinidad, West Indies.

Perrine: Originated at Perrine, Florida.

Peters: From Jamaica, West Indies.

Rajpury: From India.

Sundersha: From India.

Totifari: From India.

We can also furnish a limited number of trees of a long list of new varieties that have not as yet fruited in this country.

There is also a long list of imported varieties that had fruited in this country, which we have discarded from our collection, being of no value.

How to Prepare and Eat the Mango

The fruit should be served while firm, when the pulp will break down under pressure of the spoon to the consistency of well frozen ice cream. It can be served cold from an ice chest or not, as preferred.

The fruit may be eaten from the hand, the same as a peach or plum, but can be more conveniently served as follows:

To serve the fruit in halves, cut the fruit all around on the thin edge and into the thin edge of the seed, then take the fruit between the points of all your fingers, give each half a little turn in opposite directions, pull it apart and then run the point of a spoon all around the edge and under the seed and lift it out.

Serve each half on a dish and dip the pulp from the fruit with a spoon, as you would a cantaloupe or grape fruit. Only a few of the finest varieties of mangoes can be served in this way.

To serve them in a whole fruit, cut the skin on one side of the fruit from one end to the other and from one side to the other, making the cuts to cross in the center of the fruit on one side, then lift and turn back the skin from where the cuts cross. This will expose the pulp on one side of the fruit.

Serve on a dish and dip the pulp from the fruit with a spoon. When the seed is exposed well out over the edges, run the point of the spoon under and around the edges of the seed and lift it out, and all the pulp is then available.

The only way to eat the common jungle sorts, or the seedlings from the fine varieties which revert to the jungle types, is to suck the pulp from the mass of tangled fiber or cut it off from the seed and eat both pulp and fiber.



Avocado

From a commercial standpoint the Avocado should not be considered as fruit alone, but as staple provisions, or the necessary foods, as it is fast taking a place in the regular diet with the more substantial nerve, muscle and fat producing articles of food. It can be easily digested and assimilated by the most delicately constituted persons, and the fats and nourishments that it contains are in the most wholesome forms.

It has none of the enticing flavors of confections or dessert fruit, but its nutty flavor, when served either plain, with salt or pepper, or any of the salad dressings, is very highly appreciated.

It is the gift of nature to the tropical countries for food instead of meats and animal fats, and is a blessing to the people of cold climates, where so much fats and nourishing foods are required to give heat and energy to stand the cold of winter.

The Avocado is a vigorous, healthy, strong-growing, long-lived tree, where climate and soil conditions are favorable, and budded trees come into bearing at two and three years old. The soil best suited to their culture is a rich, sandy loam, well drained. It does not do well on lands subject to overflow. The tree is a strong feeder and a great deal of fertilizer can be used to advantage, if intelligently applied.

The territory in which the Avocado can be grown for American markets is limited, on account of the tropical nature of the tree. It can be grown profitably where the temperature goes as low as 28 to 30 degrees Fahrenheit, by protecting the young trees the first two or three winters after planting. After that time the thick bark on the stem and dense foliage on its spreading branches furnish sufficient protection.

Varieties

The Avocado does not can or cook to any advantage, and must be used in a fresh state, which requires the cultivation of varieties to afford a continuous supply. In autumn and winter much more of this class of food is required, therefore, the varieties maturing their fruit during these periods are much more desirable and profitable than those maturing during the summer.

The shape of the fruit is a very important point in varieties for market purposes. The nearer round the fruit, the more desirable on this point, which makes it possible to size and pack them in given counts and a more uniform package, confirming to market rules, and this shape fruit carries much better than if in any other shape.

Trapp

The Trapp Avocado was originated by the late Mr. C. L. Trapp, of Cocconut Grove, Fla., whose name it bears. It is of the South American type. Shape—nearly round, slightly distended at stem end with very slight oblique flattening at blossom end. Average weight one and one-half pounds. Weight, size and shape very uniform. Color, dark green. Smooth, thin skin of firm structure. Meat thick; rich golden yellow color; texture smooth, fine grain, firm but rich and melting, with the exquisitely delicate buttery and nutty flavor so much appreciated in the Avocado. Seed, medium small, fitting perfectly and firmly in its cavity without space. Quality, the very best. Tree a vigorous, prolific, regular and heavy bearer. Season, October first to January, and “hangs on well.”

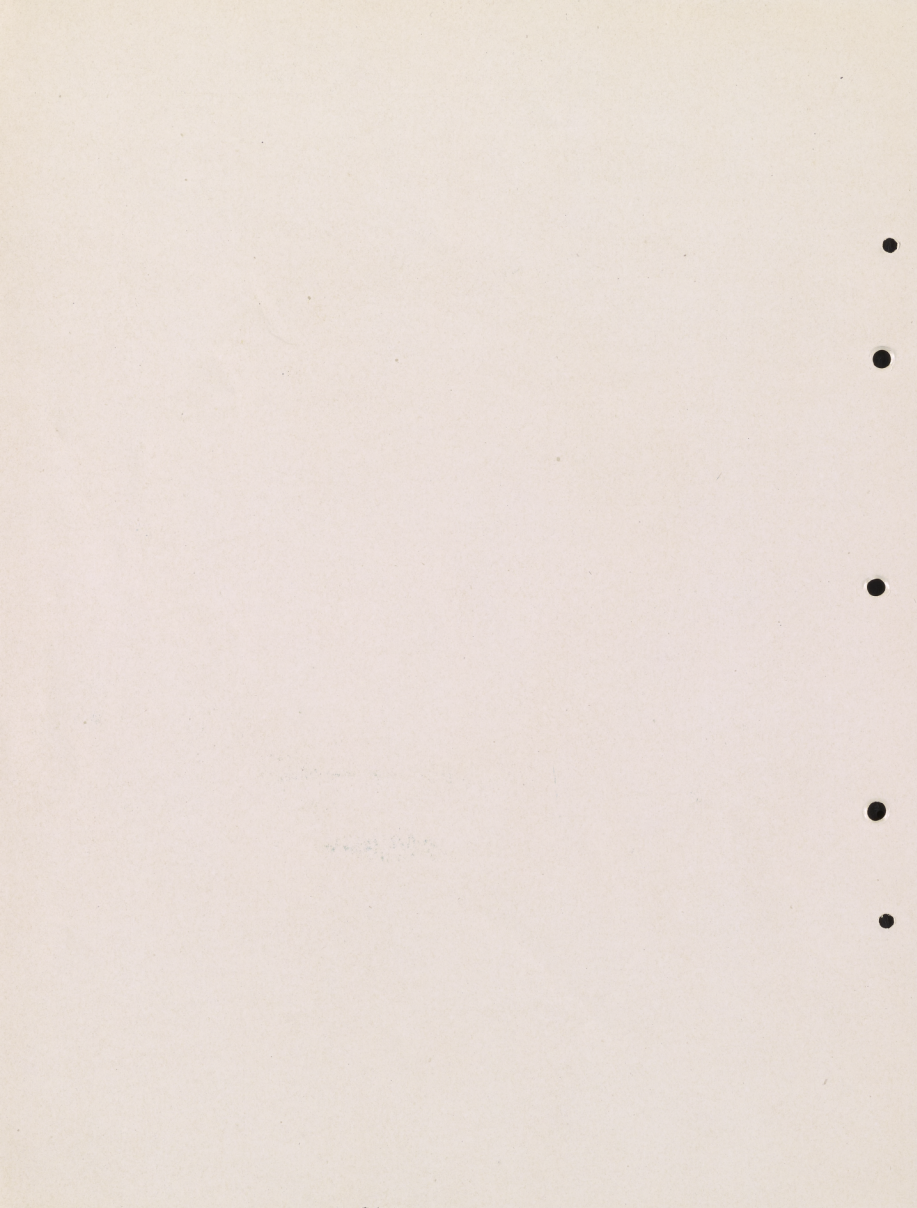
This variety is far superior to all others for market value. Its superior quality, shape, size and appearance and the season at which it matures, fits it for a high priced fruit.

It can be sized for packing in an orange or grape-fruit sizer to make a uniform package of given counts.

GEORGE B. CELLON,
MIAMI, FLORIDA.



FIG. 8. TRAPP AVOCADO



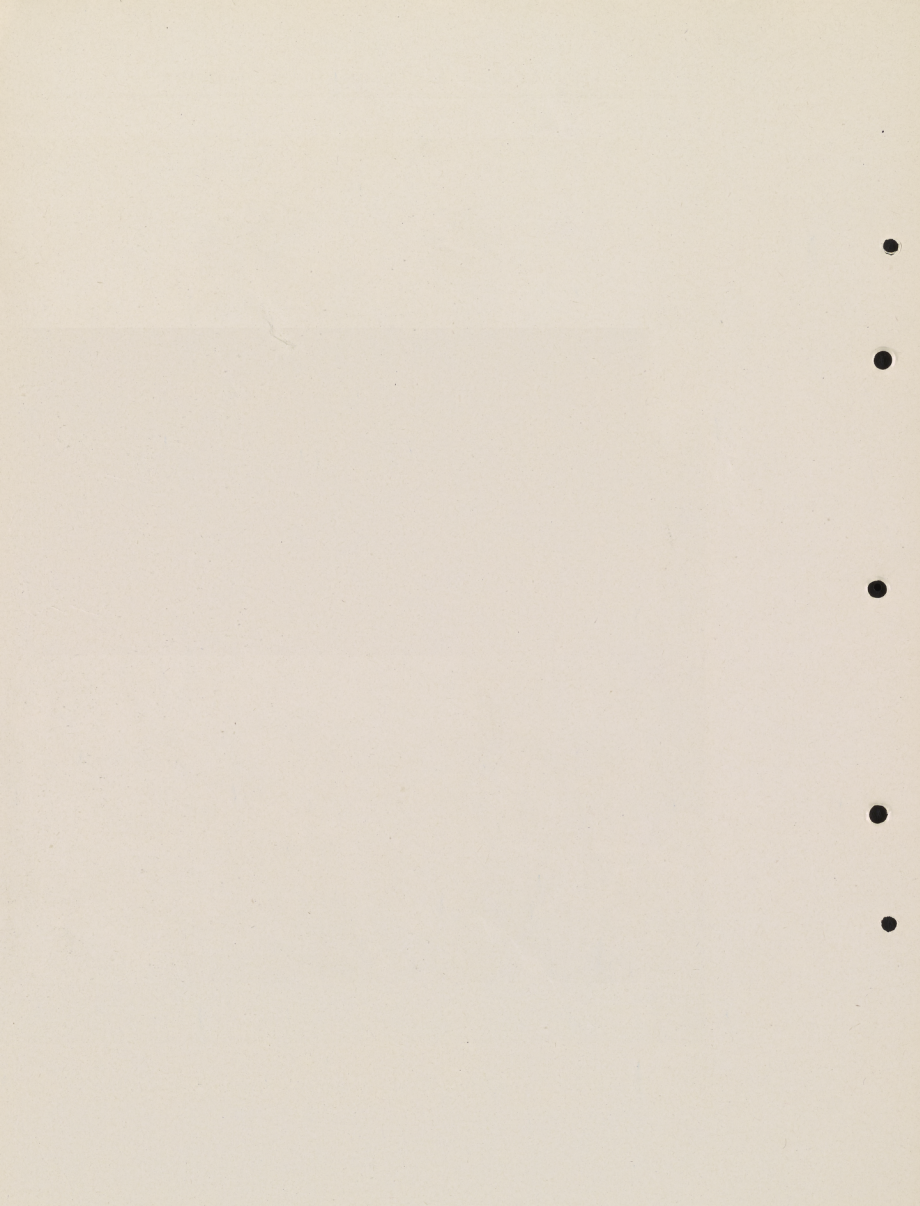
Pollock

The Pollock Avocado is of the South American type. It was originated by Mr. H. S. Pollock of Miami, Fla., for whom it is named. It is oblong, thick necked in shape, very large, average weight when fully matured two and one-half pounds. Single specimens have weighed three and three quarter pounds. Skin smooth, dark green in color. Meat very thick, of a rich golden yellow color, with narrow green streak next to the skin; seed medium small, fitting perfectly in cavity without space; meat proportions very good. Flavor mild, rich and melting. Quality best. Season from July to October. Tree a very vigorous grower, early and prolific bearer.

This variety furnishes a uniform fruit of high points of market value in the season of the greatest supply in the markets of seedling fruits. Its size, appearance and quality, as an early sort, gives it advantages in market. It is of superior value as a table fruit, as it cuts up to great advantage.



Fig. 8. Trapp Avocado. First crop on two year old budded tree.





Loquat

The Loquat, a Japanese fruit, has been cultivated in family orchards in middle and northern Florida, the Gulf states and California for many years. Not until within the past few years have the better varieties been budded and cultivated for market in California, where as in all of the Gulf states and all of Florida except the two more southern and more tropical countries, the tree blooms in November and December and early frost is liable to destroy the bloom, making it an uncertain crop, and if not destroyed by frost the fruit matures in May and June and is thrown in market competition with small fruits of the North and southern peaches.

In the two southern counties of Florida and the West Indian Islands, the bloom is never destroyed by frost and the fruit matures in January and February, and does not come into market competition with any other fruits of its class.

In the common seedling varieties formerly cultivated, the fruit is small and seed large in proportion to the size of the fruit, and the fruit is too acid until mellow ripe, and in all respects unfitted for market purposes.

The varieties now budded and cultivated for market are large and most deliciously flavored, and are the most promising small fruit for cultivation in South Florida and the West Indian Islands for the northern markets of the United States.

This fruit should be allowed to ripen on the trees to an orange yellow color, and packed in strawberry baskets and will carry well by express, if carefully handled.

Varieties

The following we consider the most desirable for commercial orchards.

Pineapple

Size—Medium to large, one and one-quarter by one and three-quarters of an inch thick; oblong, pear-shaped. Color—light orange. Seed small, pulp very tender, melting and juicy. Flavor rich, sparkling and delicious, sub-acid. Quality, very best. Tree prolific, medium strong grower.

Victor

Size—Very large, one and one-half by two inches thick; oblong, pear-shaped. Color—bright orange. Seed small, pulp thick, tender and juicy. Flavor delicious, rich and exhilarating, sub-acid. Quality, very best. Tree strong grower and prolific bearer.

GEORGE B. CELLON,

MIAMI, FLORIDA.



FIG. 10. VICTOR LOQUAT

Plan of Orchard

The Mango and Avocado are long lived trees and develop into very large spreading specimens, of great bearing capacity when they have plenty of space. These trees should be planted from thirty to forty feet apart each way, and a loquat planted in the intermediate space in the center of the square, which will render all the space productive from the beginning, and when the Mango or Avocado tree requires the space, the loquat tree should be cut out.

Transplanting Tropical Trees

In tropical countries where evaporation is very rapid at all seasons, more care must be exercised in the planting of trees in orchard, and tropical trees cannot be planted from open ground nursery successfully except where they are planted within a few hours after digging and the best of attention given.

The plants we offer, growing in wooden boxes, are a great improvement over the ordinary pot plant, grown in small shallow crocks, with roots entangled in a small ball. Our plants have twelve inches of root depth, which renders moisture more available; the large ball of soil makes less root entangling, they can be more easily transplanted without disturbing the roots by splitting away the box. They grow off much quicker, are more vigorous and desirable in all respects.

Rules of Business

Visitors, whether prospective purchasers or otherwise, are at all times welcome and a notice mailed a few days in advance will insure our personal attention, which will afford me great pleasure.

Terms of sale. Our prices are net cash on all stock as quoted. All orders for immediate delivery must be accompanied with cash for the full price of the trees ordered.

Orders for future delivery must be accompanied with twenty-five per cent of the price of the trees ordered.

Remittances. Remittances by Bank Draft, Post Office or Express Money Orders will insure our prompt attention.

Agents. No agents are employed or authorized to represent us in any capacity, we hold ourselves personally responsible for purchase of trees direct from our nurseries only.

Guarantee. We guarantee all stock to be well grown true to name, properly packed and shipped according to instructions, but in no case will our liabilities be greater than the original price of the trees. Our liabilities cease upon the delivery of trees to forwarding companies.

Provided under the above and foregoing guarantee that all claims arising thereunder must be made in due form in writing within ten days after the delivery of the trees to the purchaser.

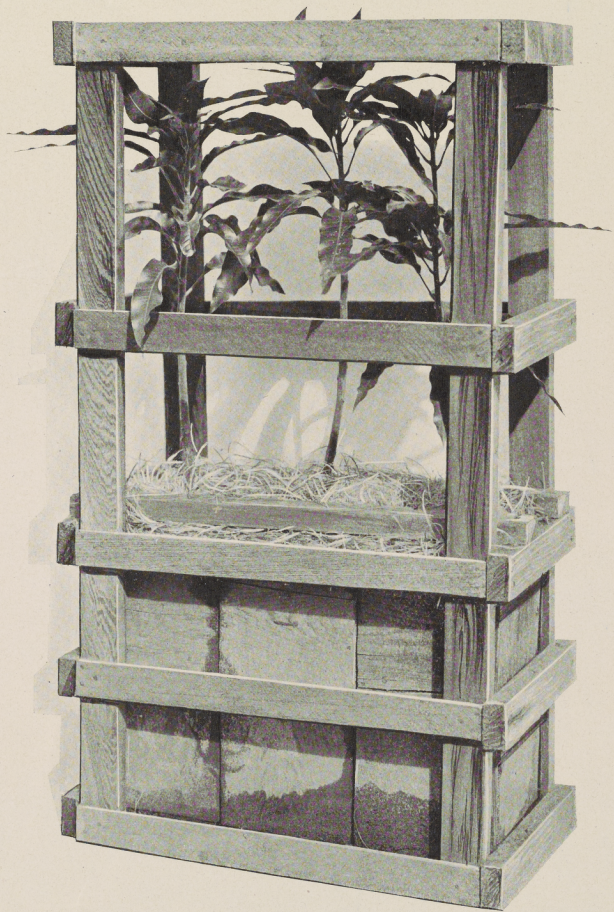
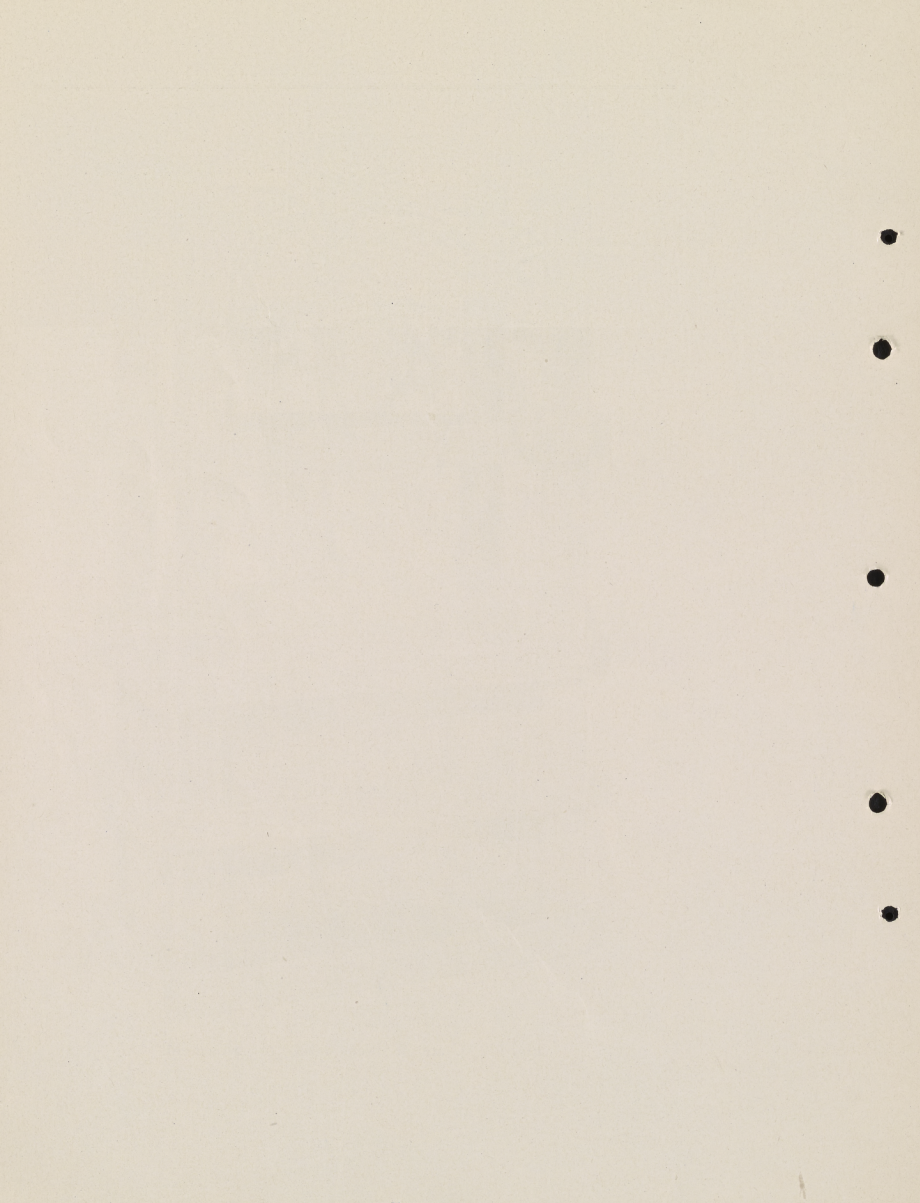


Fig. 11. Crate of Trees ready for Shipment.



Price List of Trees and Plants

AVOCADO TREES.

All varieties listed, budded on stock of South American type.

Pot plants, or growing in wooden boxes 5x6x12 inches inside, shipping weight about 25 to 30 pounds each when crated for shipment.

	Each	Per 100	Per 1,000
6 to 12 inches high	\$1.25	\$115.00	\$1,000.00
12 to 18 inches high	\$1.50	\$125.00	\$1,150.00
18 to 24 inches high	\$1.75	\$150.00	\$1,250.00

MANGO TREES.

All varieties listed, budded on jungle seedling mango stock.

Pot plants or growing in wooden boxes 5x6x12 inches inside, shipping weight about 25 to 30 pounds each when crated for shipment.

	Each	Per 100	Per 1,000
6 to 12 inches high	\$1.60	\$140.00	\$1,250.00
12 to 18 inches high	\$1.75	\$160.00	\$1,500.00
18 to 24 inches high	\$2.00	\$185.00	\$1,750.00

LOQUAT TREES.

All varieties listed, budded on seedling loquat stock.

Pot plants or growing in boxes 5x6x12 inches inside, shipping weight about 25 to 30 pounds each when crated for shipment.

	Each	Per 100	Per 1,000
6 to 12 inches high	\$1.00	\$80.00	\$750.00
12 to 18 inches high	\$1.25	\$100.00	\$800.00

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GEORGE B. CELLON, MIAMI, FLORIDA

